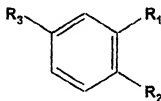


## WHAT IS CLAIMED IS:

1. A nitrosated and/or nitrosylated phosphodiesterase inhibitor having the formula  $\text{NO}_n\text{-PDE}$  wherein is 1 or 2.
2. The nitrosated and/or nitrosylated phosphodiesterase inhibitor of claim 1 which is nitrosylated or nitrosated through an oxygen, sulfur, carbon or nitrogen site on the phosphodiesterase inhibitor.
3. The nitrosated and/or nitrosylated phosphodiesterase inhibitor of claim 1 which is selected from the group consisting of:

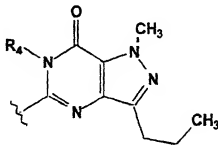
(I) compounds having the structure:



I

wherein,

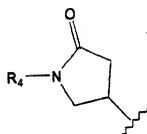
$R_1$  is alkoxy, cycloalkoxy, halogen, or



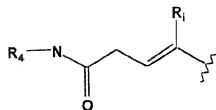
$R_2$  is hydrogen, alkoxy, or haloalkoxy; and

$R_3$  is selected from:

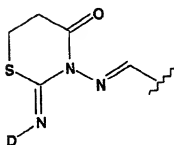
(i)



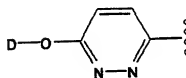
(ii)



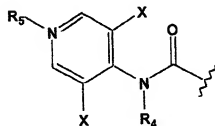
(iii)



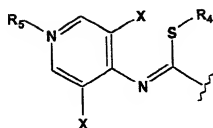
(iv)



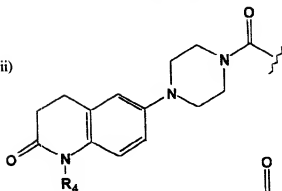
(v)



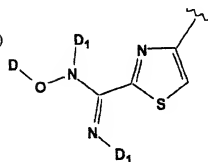
(vi)



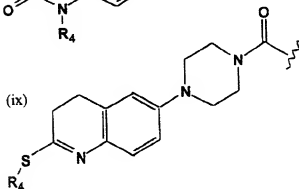
(vii)



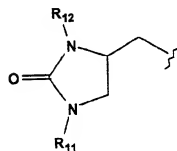
(viii)



(ix)



(x)



wherein

D is selected from (i) -NO; (ii) -NO<sub>2</sub>; (iii) -C(R<sub>d</sub>)-O-C(O)-Y-Z-[C(R<sub>e</sub>)(R<sub>f</sub>)]<sub>p</sub>-T-Q in which R<sub>d</sub> is hydrogen, lower alkyl, cycloalkyl, aryl, alkylaryl, aryl or heteroaryl, Y is oxygen, sulfur, or NR<sub>i</sub> in which R<sub>i</sub> is hydrogen, lower alkyl, R<sub>e</sub> and R<sub>f</sub> at each occurrence are independently selected from hydrogen, lower alkyl, cycloalkyl, aryl, heteroaryl, arylalkyl, amino, alkylamino, amido, alkylamido, dialkylamino, carboxy, or taken together are carbonyl, cycloalkyl or bridged cycloalkyl, p is an integer from 1 to 6, T is a covalent bond, oxygen, sulfur or nitrogen, Z is selected from a covalent bond, alkyl, cycloalkyl, aryl, heteroaryl, arylalkyl or arylheterocyclic ring, and Q is selected from -NO or -NO<sub>2</sub>; (iv) -C(O)-T<sup>1</sup>-Z-[C(R<sub>e</sub>)(R<sub>f</sub>)]<sub>p</sub>-T<sup>2</sup>-Q wherein T<sup>1</sup> and T<sup>2</sup> are independently selected from T and R<sub>e</sub>, R<sub>f</sub>, p, Q, Z, and T are as defined in this specification; (v) -C(O)-Z-[G-[C(R<sub>e</sub>)(R<sub>f</sub>)]<sub>p</sub>-T-Q]<sub>p</sub> wherein G is (i) a covalent bond; (ii) -T-C(O)-; (iii) -C(O)-T, or (iv) Y, and wherein R<sub>e</sub>, R<sub>f</sub>, p, Q, T, Y, and Z are as defined in this specification; (v) -C(O)-T[C(R<sub>e</sub>)(R<sub>f</sub>)]<sub>p</sub> wherein R<sub>e</sub> and R<sub>f</sub> are independently selected from -T<sup>1</sup>-[C(R<sub>e</sub>)(R<sub>f</sub>)]<sub>p</sub>-G-[C(R<sub>e</sub>)(R<sub>f</sub>)]<sub>p</sub>-T<sup>2</sup>-Q wherein G, R<sub>e</sub>, R<sub>f</sub>, p, Q, T, T<sup>1</sup>, and T<sup>2</sup> are as defined in this specification;

R<sub>4</sub> is selected from (i) hydrogen, (ii) -C(R<sub>d</sub>)-O-C(O)-Y-Z-[C(R<sub>e</sub>)(R<sub>f</sub>)]<sub>p</sub>-T-Q, (iii) -C(O)-T<sup>1</sup>-[C(R<sub>e</sub>)(R<sub>f</sub>)]<sub>p</sub>-T<sup>2</sup>-Q, (iv) -C(O)-Z-[G-[C(R<sub>e</sub>)(R<sub>f</sub>)]<sub>p</sub>-T-Q]<sub>p</sub>; and wherein R<sub>d</sub>, R<sub>e</sub>, R<sub>f</sub>, p, G, T, T<sup>1</sup>, T<sup>2</sup>, Q, Y, and Z are defined as in this specification;

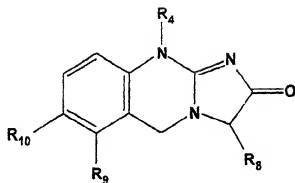
R<sub>5</sub> is selected from a lone pair of electrons or -C(R<sub>d</sub>)-O-C(O)-Y-Z-[C(R<sub>e</sub>)(R<sub>f</sub>)]<sub>p</sub>-T-Q wherein R<sub>d</sub>, R<sub>e</sub>, R<sub>f</sub>, p, T, T<sup>1</sup>, T<sup>2</sup>, Q, Y, and Z are defined as in this specification;

R<sub>11</sub> and R<sub>12</sub> are independently selected from hydrogen or R<sub>4</sub> wherein R<sub>4</sub> is as defined in this specification with the provision that R<sub>11</sub> and R<sub>12</sub> are not both hydrogen;

X is a halogen and;

D<sub>1</sub> is selected from D or hydrogen and wherein D is as defined in this specification.

(II) compounds having the structure:



II

wherein,

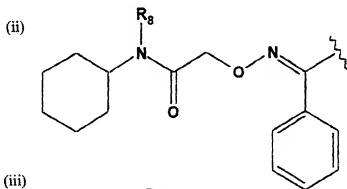
$R_4$  is as defined in this specification;

$R_8$  is selected from hydrogen or lower alkyl;

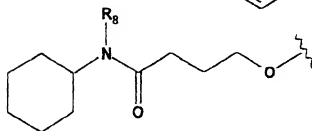
$R_9$  is selected from hydrogen or halogen; and

$R_{10}$  is selected from:

(i) hydrogen

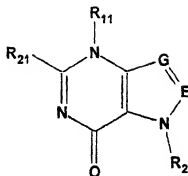


(iii)



wherein  $R_8$  is as defined in this specification.

(III) compounds having the structure:



III

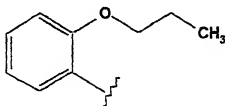
wherein,

E is selected from nitrogen or -CH-;

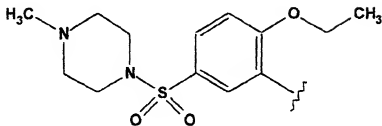
G is selected from nitrogen or -C(R<sub>8</sub>)-;

R<sub>21</sub> is selected from:

(i)



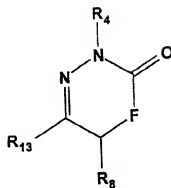
(ii)



R<sub>22</sub> is selected from R<sub>12</sub> or lower alkyl; and

R<sub>8</sub>, R<sub>11</sub>, and R<sub>12</sub> are as defined in this specification.

(IV) compounds having the structure:



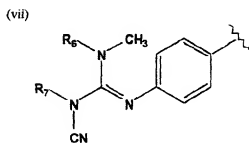
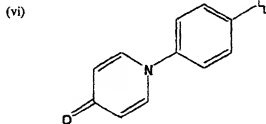
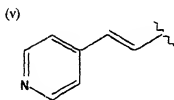
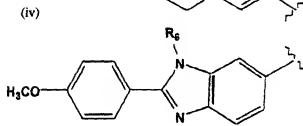
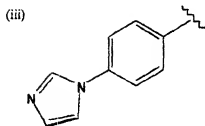
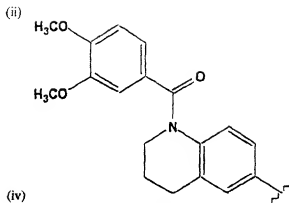
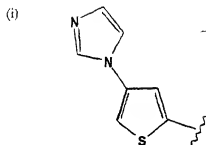
IV

wherein,

F is selected from -CH<sub>2</sub>- or sulfur;

R<sub>4</sub> and R<sub>8</sub> are as defined in this specification; and

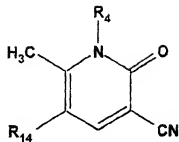
R<sub>13</sub> is selected from:



wherein,

$R_6$  and  $R_7$  are independently selected from hydrogen or  $R_4$  wherein  $R_4$  is as defined in this specification.

(V) compounds having the structure:



V

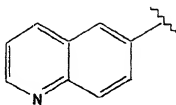
wherein,

R<sub>4</sub> is as defined in this specification; and

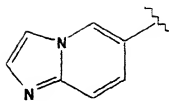
R<sub>14</sub> is selected from:



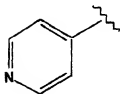
(i)



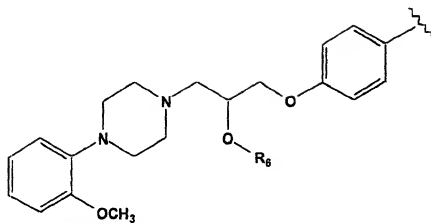
(ii)



(iii)

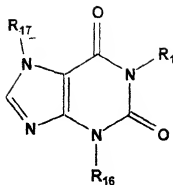


(iv)



wherein  $R_6$  is as defined in this specification.

(VI) compounds having the structure:



VI

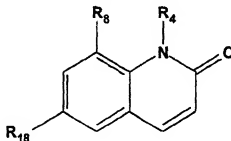
wherein,

R<sub>15</sub> is hydrogen, lower alkyl, R<sub>4</sub>, or  $-(CH_2)_4-C(CH_3)_2-O-D_1$ ;

R<sub>16</sub> is lower alkyl; and

R<sub>17</sub> is hydrogen, lower alkyl,  $CH_3-C(O)-CH_2-$ ,  $CH_3-O-CH_2-$ , or D with the provision that either R<sub>15</sub> or R<sub>17</sub> must be selected to contain D and wherein D and D<sub>1</sub> are as defined in this specification.

(VII) compounds having the structure:



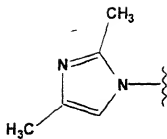
VII

wherein,

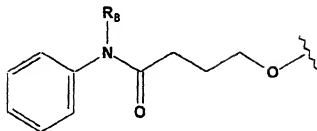
R<sub>4</sub> and R<sub>8</sub> are as defined in this specification and

R<sub>18</sub> is selected from:

(i)

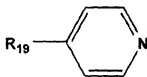


(ii)



and wherein  $\text{R}_8$  is as defined in this specification.

(VIII) compounds having the structure:

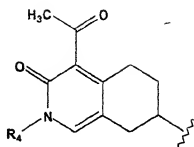


VIII

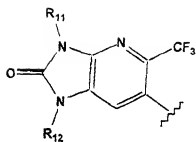
wherein,

$\text{R}_{19}$  is selected from:

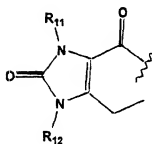
(i)



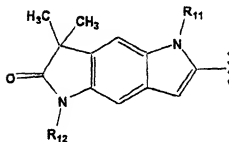
(ii)



(iii)

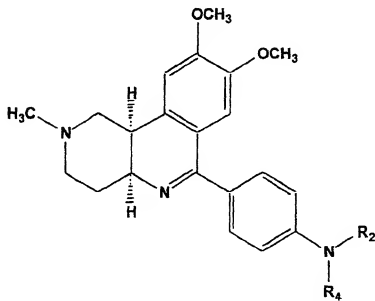


(iv)



and wherein  $R_4$ ,  $R_{11}$ , and  $R_{12}$  are defined as in this specification.

(IX) compounds having the structure:



IX

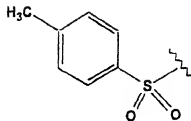
wherein,

$R_{20}$  is selected from:

(i)

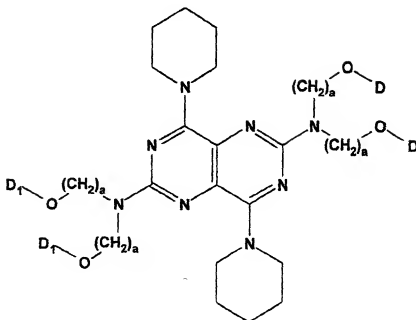


(ii)



and wherein  $R_4$  is defined as in this specification.

(X) compounds having the structure:

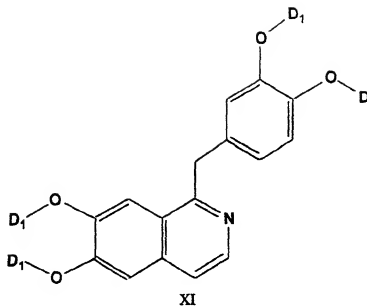


X

wherein,

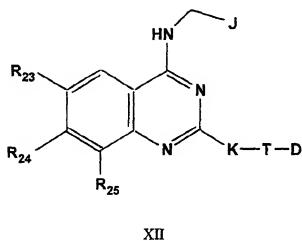
$a$  is an integer from 2 to 3 and  $D$  and  $D_1$  are defined as in this specification.

(XI) compounds having the structure:



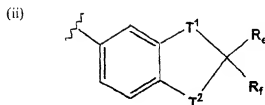
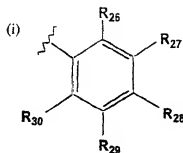
wherein D and D<sub>1</sub> are defined as in this specification.

(XII) compounds having the structure:

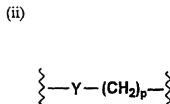
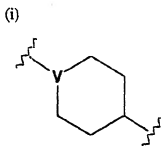


wherein,

J is selected from:



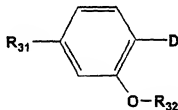
K is selected from:



wherein V is carbon or nitrogen;

$R_{23}$ ,  $R_{24}$ ,  $R_{25}$ ,  $R_{26}$ ,  $R_{27}$ ,  $R_{28}$ ,  $R_{29}$ , and  $R_{30}$  are independently selected from hydrogen, halogen, alkoxy, nitrile, carboxamido, or carboxyl; and wherein  $p$ ,  $R_e$ ,  $R_f$ ,  $T$ ,  $T^1$ ,  $T^2$ ,  $Y$  and  $D$  are defined as in this specification.

(XIII) compounds having the structure:



XIII

wherein,

$R_{31}$  is alkyl, halogen, haloalkyl, or haloalkoxy;

$R_{32}$  is selected from  $D_1$  or  $-C(O)-R_8$ ; and

wherein  $D_1$  and  $R_8$  are defined as in this specification.

4. A composition comprising a therapeutically effective amount of the phosphodiesterase inhibitor of claim 1 and a one to ten fold molar excess of a compound that donates, transfers or releases nitrogen monoxide as a charged species, i.e., nitrosonium ( $NO^+$ ), or nitroxyl ( $NO^-$ ), or as the neutral species, nitric oxide ( $NO$ ) or induces the production of endogenous EDRF and a pharmaceutically acceptable carrier.

5. A method for treating male impotence in humans which comprises administering to an individual in need thereof a therapeutically effective amount of a nitrosated or nitrosylated PDE inhibitor of claim 1.

6. A method for treating female sexual dysfunction in humans which comprises administering to an individual in need thereof a therapeutically effective amount of a nitrosated or nitrosylated PDE inhibitor of claim 1.

7. A method for treating anal disease in humans which comprises administering to an individual in need thereof a therapeutically effective amount of a nitrosated or nitrosylated PDE inhibitor of claim 1.